

B1 basis being from 30 to 50% based on the olefinic content of the feedstock, wherein the catalyst has been pretreated by heating the catalyst in steam and de-aluminating the catalyst by treating the catalyst with a complexing agent for aluminum, the pretreatment increasing the silicon/aluminum atomic ratio of the catalyst to a value from 180 to 1000.

Claims 11 and 14 have been cancelled.

Remarks

This application has been carefully reconsidered in view of the Final Rejection of February 13, 2001. By this Amendment, dependent claim 11 has been cancelled and parent claim 1 has been amended to incorporate the subject matter of claim 11. Applicants acknowledge with appreciation the courtesy of the telephone interview granted the undersigned attorney for applicants by the Examiner, Mr. Yildirim. While no agreement was reached regarding allowance of the application, applicants respectfully submit, for reasons advanced below, that all of the claims in this application are now in condition for allowance. Accordingly, it is respectfully requested that the foregoing Amendment be entered as placing the application in condition for allowance. If the Examiner still feels that the subject matter of claim 1 (formally claim 11) is not in condition for allowance, it is respectfully requested that this Amendment be entered as placing the application in better form for appeal. It is noted that no issues are raised requiring further search or consideration since the subject matter of claim 1 as now amended has been present in the application throughout the prosecution thereof.

With the amendment of claim 1, all of the claims in this application are directed to the preferred embodiment of applicants' invention as described in applicants' specification in the

paragraph bridging pages 13 and 14. As described there, the preferred catalyst for use in the cracking process is one which has been pretreated by a steaming and complexing agent treatment. The procedure for increasing the silicon/aluminum atomic ratio of the MFI-type silicate, the steaming procedure followed by the treatment with a complexing agent for aluminum, removes amorphous alumina produced during the steaming step from the crystalline silicate framework. This enables the olefin cracking process to proceed within the pores of the MFI-type catalyst. As explained in applicants' specification, the result is an achievement of a high propylene yield with enhanced stability of the MFI catalyst over time. It will be noted that the only MFI-type catalysts disclosed in the Colombo '060 patent are ZSM-5 and silicalite. Clearly, there is no disclosure in the reference employing such catalysts of the MFI type which have been obtained by pretreating with steam and then treatment with a complexing agent for aluminum.

It further will be noted that all of applicants' claims are directed to the production of propylene by a process involving contacting the olefinic feedstock with an MFI-type catalyst having a silicon/aluminum atomic ratio of from 180 to 1000. The patent to Colombo discloses a number of catalysts, some of which presumably are MFI-type catalysts and others which clearly are not. For example, Colombo discloses the use of ZSM-5, silicalite (of a silica/alumina ratio well above the 180-1000 range and ZSM-11. Applicants will presume for present purposes that the Silicalite I and the ZSM-5 zeolite disclosed in Colombo are MFI crystalline silicates. Another catalyst disclosed in EP '060, ZSM-11, clearly is not an MFI-type silicate. In this regard, attention is respectfully invited to "Atlas of Zeolite Structure Types," Meier and Olson, 1978, and particularly the structure-type index appearing on pages 89-93 thereof, a copy of which is attached. As shown there, ZSM-11 is of structure type MEL. Various other catalysts

disclosed in Colombo may or not be MFI-type zeolites; it is simply impossible to tell. The Silicalite 1 actually disclosed in Colombo clearly does not have a silicon/aluminum atomic ratio of from 180 to 1000—as-called for in applicants' claims. In fact, to the extent that the silicon/aluminum atomic ratio is addressed in Colombo, the reference simply requires a ratio of at least 175 and actually discloses a MFI-type catalyst (silicalite) in which no aluminum is present. In fact, every example in Colombo addressing silicalite specifies a silicon/aluminum ratio of infinity, *i.e.* no aluminum is present. Thus, a fair reading of the disclosure in Colombo is that the silicon/aluminum atomic ratio is of no significance, and it makes no difference whether or not aluminum is even present in the catalyst.

In addition to the requirement in applicants' claim 1 of a MFI-type catalyst having a silicon/aluminum atomic ratio of 180 to 1000 produced by steaming and complexing agent pretreatment, the patent to Colombo further fails to disclose a process carried out to provide a propylene yield of from 30-50% based upon the olefinic content of the feedstock. To the extent the Final Rejection would argue that this result of a propylene yield within the 30-50% range would flow naturally from the operation of the reference, applicants would respectfully disagree. Initially, to the extent that the rejection here is based upon one of inherency, applicants would respectfully note that the law is well settled that for an alleged inherent feature to result from a prior art teaching, it is necessary that this inherent feature necessarily flow from the teachings of the prior art. Thus, an alleged inherent feature must be a necessary result and not merely a possible result. This principle is stated in MPEP Section 2112:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. (Emphasis original)

Section 2112 reflects the general rule that for inherency to reside, it must be shown that the alleged inherency is necessarily present and not a mere possibility. Thus, as stated by the Board in *Ex parte Keith*, 154 USPQ 321 (Bd. of App. 1966), in reversing the Examiner's rejection based upon inherency:

There are other possible courses the reaction could follow . . .
Asserted inherency must be a necessary result and not merely a possible result.

As indicated in Section 2112, this principle was more recently followed by the Board in *Ex parte Levy*, 17 USPQ2d 1461 (Bd. of App. and Interf. 1990), where the Board reversed an inherency rejection, stating as follows:

In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the alleged inherent characteristic necessarily flows from the teachings of the prior art (citing cases). (emphasis original).

Here, the issue presented by the rejection based upon Colombo is not only the requirement for a propylene yield of 30-50% but also the requirement that the catalyst employed in the cracking process be one which is pretreated by steaming and dealumination with a complexing agent for aluminum in which the silicon/aluminum atomic ratio of the catalyst is from 180 to 1000. This combination of features is not disclosed or suggested in the Colombo reference, and they are clearly not inherent therein.

For the reasons advanced above, it is respectfully requested that this Amendment be entered as placing the application in condition for allowance or, alternatively, in better form for appeal.

Enclosed is a check in the amount of \$110.00 to cover the fee for a one-month extension. The response to the February 13, 2001, Final Office Action was due to be filed by May 13, 2001,

but with a one-month extension, the response is now due June 13, 2001, the day on which this response is being mailed. The Commissioner is hereby authorized to charge any further fees connected with this Amendment which may be due or to credit any overpayment to our Deposit Account No. 12-1781.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'William D. Jackson', written in a cursive style.

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Date: June 13, 2001

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31223-79001
(F-722 / FINT B9588)



Patent Application Serial No. 09/205,056

Attachment to Response (Amendment) to the Final Office Action of February 13, 2001:

1. (Twice Amended) A process for the production of propylene from an olefinic feedstock containing at least one olefin of C₄, or greater, the process comprising contacting the olefinic feedstock with a catalyst of the MFI-type having a silicon/aluminum atomic ratio of from 180 to 1000 to produce an effluent containing propylene, the propylene yield on an olefin basis being from 30 to 50% based on the olefinic content of the feedstock, wherein the catalyst has been pretreated by heating the catalyst in steam and de-aluminating the catalyst by treating the catalyst with a complexing agent for aluminum, the pretreatment increasing the silicon/aluminum atomic ratio of the catalyst to a value from 180 to 1000.

11. Cancel.

14. Cancel.

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